

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-126
Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board at Sections 43000.5, 43013, and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned at Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9; and

IT IS ORDERED AND RESOLVED: That the following diesel engines and the exhaust emission control systems produced by the manufacturer are certified as described below for use in heavy-duty off-road equipment:

Model Year: 2000

Typical Equipment Usage: Dozer, Loader, Tractor and Industrial equipment

Engine Power Ratings Range: 175 horsepower and greater

Fuel Type: Diesel

<u>Engine Family</u>	<u>Displacement</u>		<u>Exhaust Emission Control Systems and Special Features</u>
	<u>Liters</u>	<u>Cubic Inches</u>	
YCPXL27.0HRP	27.0	1658	Engine Control Module Turbocharger Charge Air Cooler

The engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values in grams per brake horsepower-hour (g/hp-h) for engines with power ratings between 175 and 750 horsepower, inclusive, for total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak-values from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

	<u>Exhaust Emissions (g/hp-h)</u>				<u>Smoke Opacity (%)</u>		
	<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
Standard	1.0	8.5	6.9	0.4	20	15	50
Certification	0.1	3.6	6.2	0.1	7	1	28

The exhaust emission certification standards and certification values in grams per brake horsepower-hour (g/hp-h) for engines with power ratings above 750 horsepower for total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak-values from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

	<u>Exhaust Emissions (g/hp-h)</u>				<u>Smoke Opacity (%)</u>		
	<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
Standard	1.0	8.5	6.9	0.4	20	15	50
Certification	0.04	0.7	6.0	0.1	16	2	26


BE IT FURTHER RESOLVED: That the listed engine models comply with "Exhaust Emission Standards and Test Procedures—Heavy-Duty Off-Road Diesel-Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with "Emission Control Labels—1996 and Later Heavy-Duty Off-Road Diesel-Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model-year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 *et seq.*).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 17th day of December 1999.


for R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

EO: U-R-1-126

Process Code: **New Submission**

Manufacturer: **CATERPILLAR INC.**

EPA Engine Family: YCPXL27.0HRP		Manufacturer Family Name: NA		7.Fuel Rate: mm/stroke@peak torque		8.Fuel Rate: (lbs/hr)@peak torque		9.Emission Control Device Per SAE J1930	
1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	these fuel rates			
Note: Peak HP and Peak Torque		fuel rates are		nominal values.		Due to product-		ion engine avgs.	
1 - Cert Engine		750 @ 1800		211		255.2		2844 @ 1200	
2	3412	654 @ 1800		186		224.9		2089 @ 1200	
3	3412	682 @ 2000		180		242.9		2087 @ 1200	
4	3412	682 @ 2000		180		242.9		2087 @ 1200	
5	3412	704 @ 2000		185		248.8		2155 @ 1200	
6	3412	692 @ 1800		194		235.3		2227 @ 1200	
7	3412	725 @ 2000		193		259.1		2227 @ 1200	
8	3412	660 @ 2000		174		233.5		2148 @ 1200	
9	3412	675 @ 2000		175		235.9		2227 @ 1200	
10	3412	600 @ 1800		171		207.1		2101 @ 1200	
11	3412	650 @ 1800		187		226.7		2278 @ 1200	
12	3412	700 @ 1800		203		246.3		2452 @ 1200	
13	3412	735 @ 1800		215		259.8		2573 @ 1200	
14	3412	700 @ 2000		186		250.9		2206 @ 1400	
15	3412	750 @ 2000		202		272.4		2362 @ 1400	
16	3412	750 @ 1800		218		263.8		2625 @ 1200	
17	3412	700 @ 2100		190		268.9		2101 @ 1400	
18	3412	750 @ 2100		195		276.1		2250 @ 1400	
19	3412	725 @ 2000		193		259.1		2227 @ 1200	
20	3412	425 @ 1200		179		144.4		2285 @ 900	
21	3412	500 @ 1200		208		167.9		2284 @ 900	
22	3412	625 @ 1400		224		210.9		2742 @ 1000	
23	3412	585 @ 1300		224		195.5		2560 @ 900	
24	3412	760 @ 2100		196		276.5		2250 @ 1400	
25	3412	800 @ 2100		204		288.4		2401 @ 1400	
26	3412	820 @ 2100		211		297.8		2580 @ 1400	
27	3412	860 @ 2100		221		312.0		2584 @ 1400	
28	3412	900 @ 2100		227		320.1		2701 @ 1400	
29	3412	950 @ 2100		241		340.1		2852 @ 1400	
30	3412	1000 @ 2100		258		364.7		3003 @ 1400	
31	3412	1050 @ 2100		272		383.6		3148 @ 1400	
32-Cert Engines	3412	1082 @ 2100		276		389.7		3245 @ 1400	

CAC